Aerosol and Proton Transfer Mass Spectrometry in the ASP from Mexico City to Oklahoma City

M. Lizabeth Alexander *et al*

The Time Evolution of Aerosol Composition at the T1 Ground Site during the MAX-MEX 2006 Field Campaign

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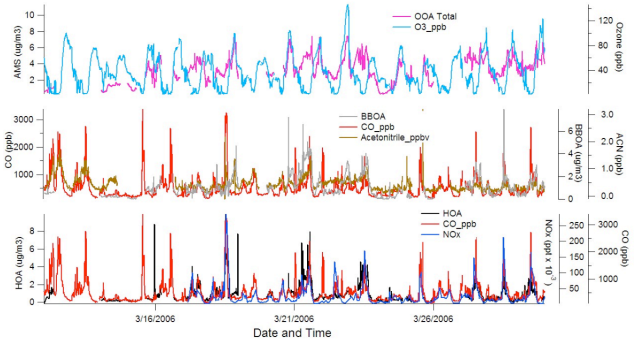
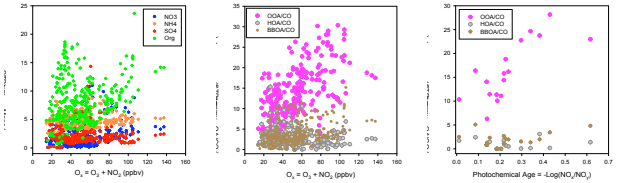
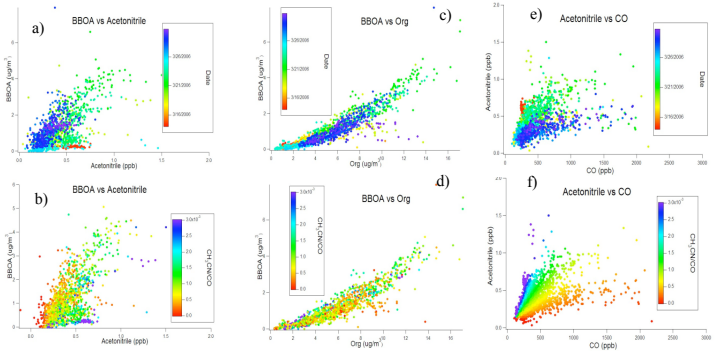
- **CToF AMS deployed by PNNL at T1 site outside Mexico City during 2006 MAX-Mex campaign in conjunction with MILAGRO**
- **Aerosol size and composition in conjunction with complimentary aerosol and trace gas measurements**
- **Same instrument used to make laser light scattering single particle measurements (see poster by Cross *et al)***
- **Analysis of AMS organic data by Positive Matrix Factorization (PMF) (see related posters by Canagaratna, Onasch)**
- **PMF component OOA, behavior consistent with aged, oxidized aerosol – correlates with photochemical age. HOA does not –consistent with primary emission component**
- **BBOA component correlates with acetonitrile(CH_3CN) and CO, both markers for biomass burning, not clearly delineated by CH_3CN/CO ratio – see related posters**







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For more information contact:

Measurement of the VOC Environment from an Aircraft Platform during an Aerosol-Cloud Interaction Study Near Oklahoma City

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- PTR-MS deployed by EMSL and Atmospheric Sciences at PNNL during 2007 CHAPS campaign in conjunction with CLASIC

- CHAPS primary purpose to study cloud aerosol processing, VOC's provide markers of emissions sources and indicators of SOA production

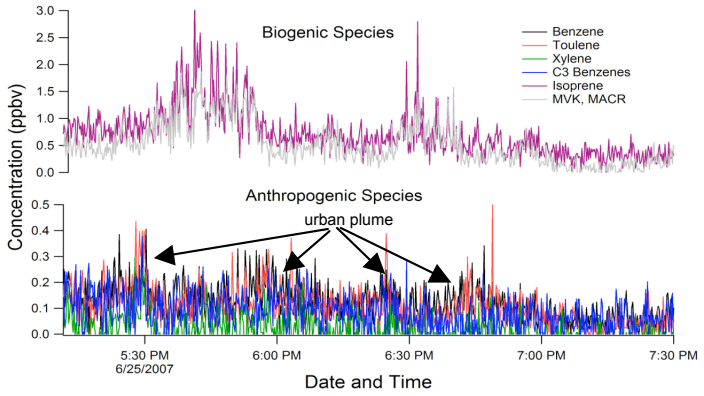
- Few VOC's consistently observed above detection limit (~10 ppt). Major biogenic(?) species were isoprene and oxidation products MVK/MACR and anthropogenic emissions indicated by benzene, toluene etc

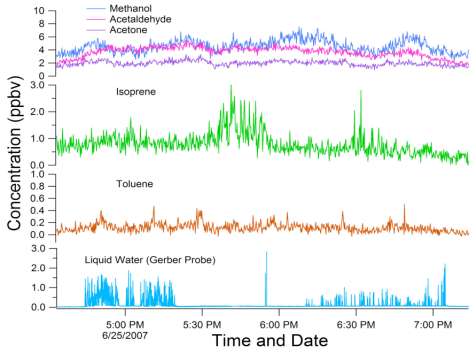
- No correlation with water indicated by Gerber probe – minimal VOC-cloud interaction

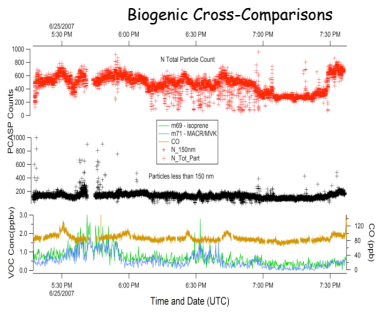
- Anthropogenic emissions well-correlated with urban plume, as indicated by CO

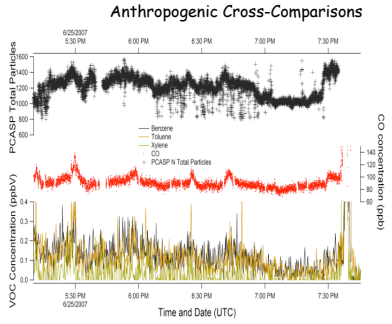
- Distinct isoprene plume not correlated with urban emissions. Concentrations high for biogenic source, no other biogenic indicators – anthropogenic source? (tire production)

- Evidence of new particle formation correlated with isoprene plume – formation of SOA observed in laboratory but not yet in field - future studies?









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Pacific Northwest National Laboratory

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Thank you to Bob Hannigan and G1 crew for keeping us safe in all those “Puffy Q’s!”

Mission Accomplished!